

**Amendments to the Specification:**

Page 9, replace paragraph [0022] with the following amended paragraph:

-- [0022] Fig. 1 is a ~~1A and Fig. 1B~~ are schematic ~~drawings~~ drawing implementing the invention in a first optical arrangement to construct the variable elliptical polarizers; --

Page 9 replace paragraph [0023] with the following amended paragraph:

-- [0023] Fig. 2 is a ~~2A and Fig. 2B~~ are schematic ~~drawings~~ drawing implementing the invention in a second optical arrangement to construct the variable elliptical polarizers; --

Page 11, replace paragraph [0033] with the following amended paragraph:

-- [0033] Optical configurations suitable for practicing the invention in a microscope are shown in schematic form in Fig. 1 ~~Figs. 1A and 1B~~. The apparatus consists of the following elements in series: monochromatic light source 101, a variable elliptical polarizer 102, a condenser 103, the specimen 104, an objective lens 105, a right or left circular analyzer 106 comprising quarter waveplate 107 with retardance of  $\lambda/4$  and fast axis at azimuth angle of  $\pm 45^\circ$  and linear analyzer 109 with a transmission axis at azimuth angle of  $0^\circ$ , and imaging detector 111. The detector and polarizer are in communication with processor 119, which receives the photodetector signals and performs the calculations of retardance; and optional display 120, which provides images of the retardance to an operator or user. --

Page 11, replace paragraph [0035] with the following amended paragraph:

-- [0035] Another set of optical configurations suitable for practicing the invention is shown in schematic form in Fig. 2 ~~Figs. 2A and 2B~~. These consist of an illuminator 101, a right

or left circular polarizer 106 comprising linear polarizer 109 with transmission axis at azimuth angle of  $0^\circ$  and quarter waveplate 107 with retardance  $\lambda/4$  and fast axis azimuth at  $\pm 45^\circ$ , sample 106, objective lens 105, and a variable elliptical analyzer 102 in the imaging path. --

Page 11, replace paragraph [0036] with the following amended paragraph:

-- [0036] The variable elliptical polarizer 102 is further made up from liquid crystal retarder cells 114 and 115, adjacent a linear polarizer 118. In the apparatus of Fig. 1[[A]], the angle between the polarizer transmission axis and the crystal axis of retarder 114 is  $\pm 45^\circ$ , and between the crystal axis of retarder 114 and the crystal axis of retarder 115 is  $\pm 45^\circ$ . In the apparatus of Fig. 2 4B, the angle between the polarizer transmission axis and the crystal axis of retarder 114 is  $\pm 22.5^\circ$  or  $\pm 67.5^\circ$ , and the angle between the crystal axis of retarder 114 and the crystal axis of retarder 115 is  $\pm 22.5^\circ$  or  $\pm 67.5^\circ$ . --

Page 12, replace paragraph [0038] with the following amended paragraph:

-- [0038] First, consider the configuration of Fig. 1[[A]] with a left circular analyzer and the elliptical polarizer. The elliptical polarizer can express one circular and four elliptical polarization states that can be used for capturing the raw images. The positions of the corresponding polarization states on the Poincare sphere are given in Fig. 3 as  $\chi_0$  through  $\chi_4$ , and  $E_1$ ,  $E_2$ ,  $E_3$  and  $E_4$  are the vibration ellipses of these states. --

Page 14, replace paragraph [0044] with the following amended paragraph:

-- [0044] In order to produce the necessary polarization states in the illumination beam we can use a linear polarizer to produce linearly polarized light along an axis of  $0^\circ$ , together with

a pair of variable retarder plates with various angles between the slow axes. Examples of two configurations are shown in Figs. 1 and 2 ~~1A and 1B~~. In the first case of Fig. 1[[A]], suitable polarization states can be obtained by the following settings of plates 114 and 115:

$\chi_0(90^\circ, 180^\circ),$	[1a]
$\chi_1(90^\circ-c, 180^\circ),$	[1b]
$\chi_2(90^\circ+c, 180^\circ),$	[1c]
$\chi_3(90^\circ, 180^\circ-c),$	[1d]
$\chi_4(90^\circ, 180^\circ+c)$	[1e]

where the notation  $(\alpha^\circ, \beta^\circ)$  denotes that the first waveplate 114 has a retardation of  $\alpha$  degrees and the second waveplate 115 has a retardation of  $\beta$  degrees. These comprise a circular polarization state, and four states lying at constant latitude of  $90^\circ-c$  on the Poincare sphere, equally spaced in longitude. --

Page 14, replace paragraph [0045] with the following amended paragraph:

-- [0045] In the second configuration of Fig. 2 [[1B]], the angle between slow axes is  $22.5^\circ$ . For this case we obtain the same polarization states with settings:

$\chi_0(270^\circ, 0^\circ),$	[2a]
$\chi_1(270^\circ-c, 0^\circ),$	[2b]
$\chi_2(270^\circ+c, 0^\circ),$	[2c]
$\chi_3(90^\circ-c, 180^\circ),$	[2d]
$\chi_4(90^\circ+c, 180^\circ)$	[2e] --

Page 14, replace paragraph [0047] with the following amended paragraph:

-- [0047] These settings are shown in tabular form in Figure 4 for the apparatus of Figs. 1[[A]] and 2 [[1B]]. As will be apparent to those skilled in the art, there are equivalent retarder arrangements that accomplish the same optical function, namely the formation of a polarization

analyzer that selects for the chosen states of polarization. Such alternative may be employed if desired, without altering the function of the present invention. --